

IN THE CLAIMS

1. (Currently Amended) A method of executing operations on virtual metadata, comprising:

initiating an operation on the virtual metadata;

locking the virtual metadata during execution of the operation;

beginning execution of the operation on the virtual metadata;

determining whether a source metadata server maintaining the virtual metadata is to be relocated during execution of the operation, wherein relocation of the source metadata server involves sending the virtual metadata from the source metadata server to a target metadata server;

determining whether the virtual metadata is under hierarchical storage management;

releasing a lock on the virtual metadata in response to relocation of the source metadata server during execution of the operation on the virtual metadata and the virtual metadata being under hierarchical storage management.

2. (Original) A method as recited in claim 1, wherein the virtual metadata is formed as a private data chain, and said method further comprises locking a pointer to the private data chain prior to linking to a first item of private data in the private data chain.

3. (Currently Amended) A method as recited in claim 2, further comprising waiting, after said releasing, for availability of a lock on the pointer to the private data chain upon completion of relocation of the source metadata server, before continuing with execution of operations on the virtual metadata.

4. (Currently Amended) A method as recited in claim 3, wherein said releasing, waiting and continuing execution of operations on the virtual metadata after relocation of the source metadata server are performed transparently to users.

5. (Currently Amended) A method of relocating a metadata server in a network of computer system nodes in which DMAPI has been implemented, comprising:

retargeting objects on the computer system nodes accessing a current metadata server to a new metadata server;

locking virtual metadata maintained by the current metadata server during execution thereof by one of the computer system nodes, the virtual metadata being DMAPI enabled;

beginning execution of the operation on the virtual metadata;

initiating relocation of the current metadata server to the new metadata server during execution of the virtual metadata, wherein relocation involves sending the virtual metadata from the current metadata server to the new metadata server;

releasing a lock on the virtual metadata in response to initiating relocation of the metadata server during execution of the virtual metadata;

sending the virtual metadata from the current metadata server to the new metadata server.

6. (Original) A method as recited in claim 5, wherein the virtual metadata is formed as a private data chain, and said method further comprises locking a pointer to the private data chain prior to linking to a first item of private data in the private data chain.

7. (Original) A method as recited in claim 6, further comprising waiting, after said releasing, for availability of a lock on the pointer upon completion of relocation of the metadata server, before continuing with execution of operations on the virtual metadata.

8. (Original) A method as recited in claim 7, wherein said releasing, waiting and continuing execution of operations on the virtual metadata after relocation of the metadata server are performed transparently to users.

9. (Currently Amended) A cluster of computer systems, comprising:

storage devices storing at least one file;  
a storage area network coupled to said storage devices;  
at least one metadata server node, coupled to said storage area network; and  
at least one metadata client node, coupled to said storage area network, the at least one metadata client node operable to:

initiate an operation on the virtual metadata;  
lock the virtual metadata during execution of the operation;

begin execution of the operation on the virtual metadata;

determine whether a source metadata server maintaining the virtual metadata is to be relocated during execution of the operation, wherein relocation of the source metadata server involves sending the virtual metadata from the source metadata server to a target metadata server;

determine whether the virtual metadata is under hierarchical storage management;

release a lock on the virtual metadata in response to relocation of said ~~at least one~~ source metadata server during execution of the operation on the virtual metadata and the virtual metadata being under hierarchical storage management.

10. (Currently Amended) At least one computer readable medium storing at least one computer program operating a cluster of computer system nodes, computer program upon execution operable to:

initiate an operation on the virtual metadata;

lock the virtual metadata during execution of the operation;

begin execution of the operation on the virtual metadata;

determine whether a source metadata server maintaining the virtual metadata is to be relocated during execution of the operation, wherein relocation of the source metadata server involves sending the virtual metadata from the source metadata server to a target metadata server;

determine whether the virtual metadata is under hierarchical storage management;

release a lock on the virtual metadata in response to relocation of the source metadata server during execution of the operation on the virtual metadata and the virtual metadata being under hierarchical storage management.

11. (Original) At least one computer readable medium as recited in claim 10, wherein the virtual metadata is formed as a private data chain, and said method further comprises locking a pointer to the private data chain prior to linking to a first item of private data in the private data chain.

12. (Currently Amended) At least one computer readable medium as recited in claim 11, wherein said computer program is further operable to wait, after said releasing, for availability of a lock on the pointer to the private data chain upon completion of relocation of the source metadata server, before continuing with execution of operations on the virtual metadata.